Establishing a Domestic Supply of Critical Rare Earths

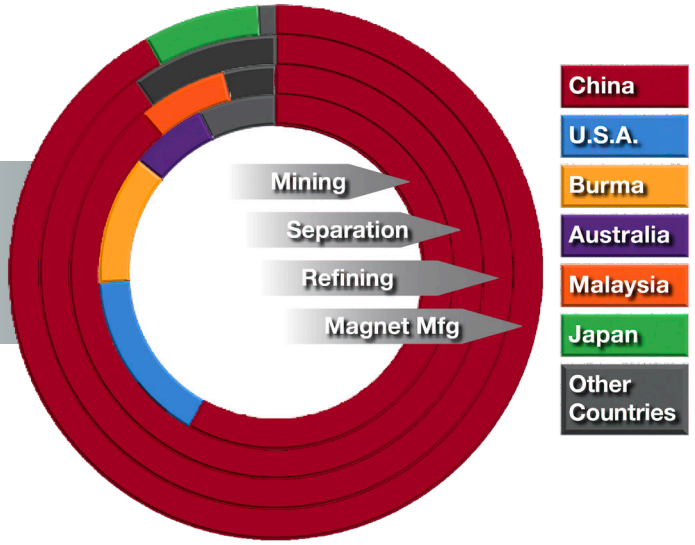
Rare Earths (REs) are Essential to Key U.S. Industries

High-Tech - Computers, cell phones, medical imaging, catalysts, operating systems, and control rods for nuclear control systems

Defense - Fighter jets, drones, laser guidance systems, night vision goggles, satellite communications, radar, and sonar

Green Energy - Direct-drive wind turbines, electric vehicles, and new components for quantum computers

Geographical Concentration of Supply Chain Stages for Sintered NdFeB Magnets*



*U.S. DOE, Critical Materials Assessment 2023, July 2023.

China Currently Dominates All Aspects of RE & Magnet Production

Responding to Chinese RE Dominance

- Demonstrating unique, high-efficiency processes to provide a domestic capability to separate & refine individual REs
- Developing the Bear Lodge Project for a domestic source of RE materials
- Building the cornerstone for a domestic magnet & electric motor manufacturing supply chain
- Magnetic REs include neodymium (Nd), praseodymium (Pr), dysprosium (Dy), and terbium (Tb) are vital input materials for a vast range of future-facing products

Bear Lodge is a World-Class Resource

- Located in NE Wyoming
- Rich supply of magnet-related REs – Nd/Pr
- Long mine life
- Demonstration program will use 700-ton sample previously extracted from Bear Lodge

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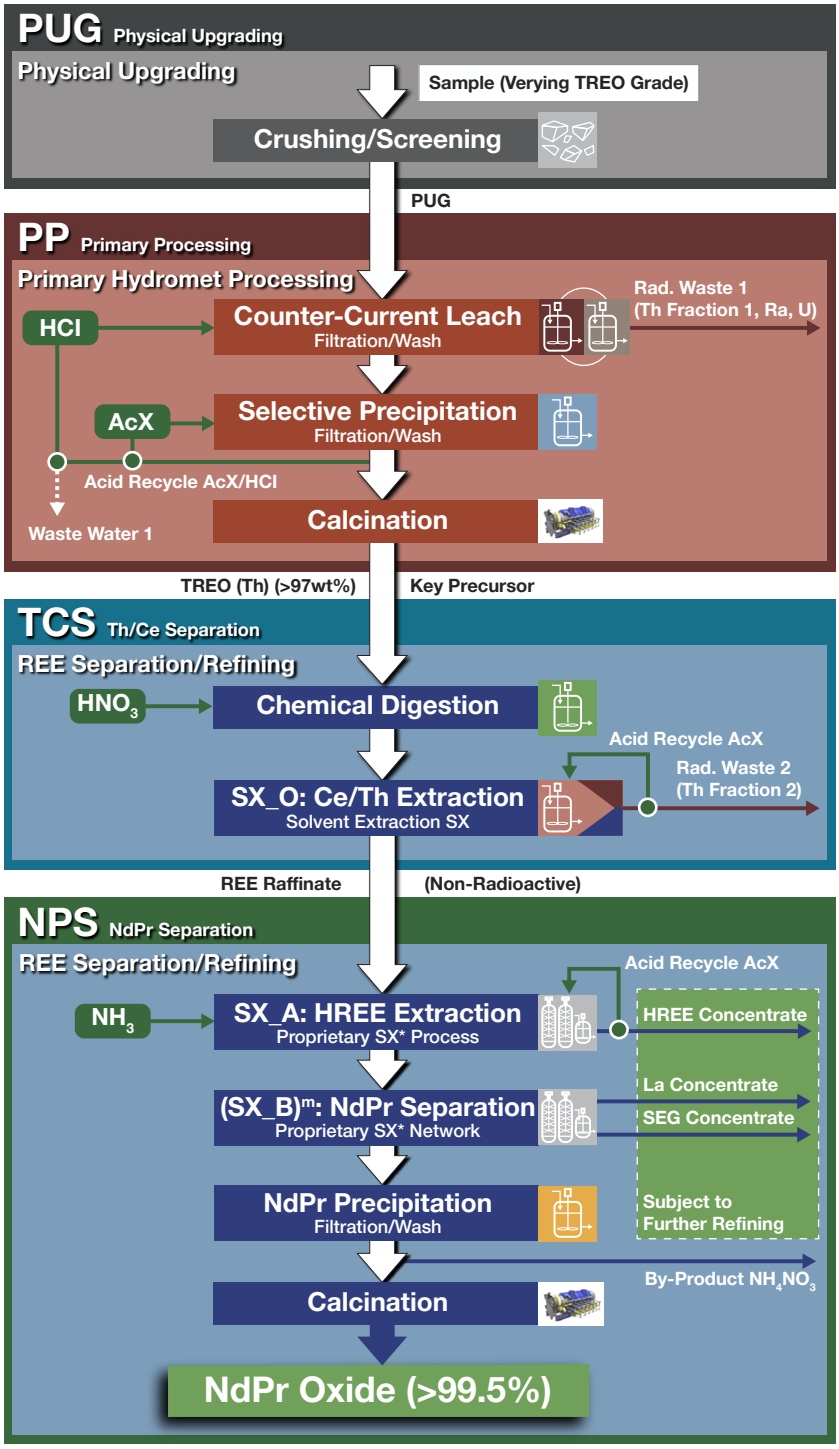
Innovative RE Separation Process

Process Advantages

- 92-97% recovery of RE concentrate from Bear Lodge mineral sample
- Novel, high-efficiency process producing >99.5% pure NdPr oxide & other rare earth oxides (REOs). Process recycles the majority of chemicals leading to reduced costs and process waste as compared to traditional practices
- Real-time control software developed from first-principles for process optimization
- Process designed for zero emissions



PUG **Physical Upgrading** or comminution of the exploration sample; crushes sample to 1-3 mm size for further processing

PP **Primary Processing** of the sample to produce a high-purity concentrate, separating the bulk tailings and radioactive materials from REEs

TCS **Thorium/Cerium Separation** removes remaining radioactive materials as well as cerium

NPS **Neodymium/Praseodymium Separation** refines REEs into groups including: NdPr, LaCe, SEG, and HREE concentrates

Project Team

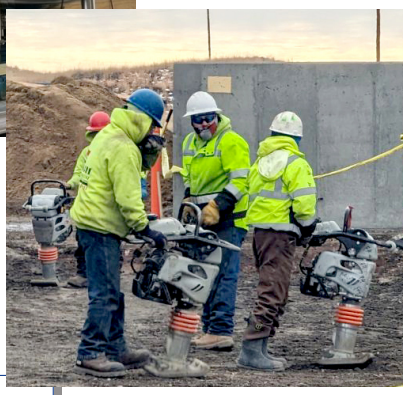
- General Atomics Electromagnetic Systems (GA-EMS)
- Rare Element Resources (RER)
- U.S. Department of Energy (DOE)
- Umwelt – und Ingenieurtechnik GmbH Dresden (UIT)
- LNV, a division of Ardurra

Project Objectives

- Demonstrate the separation of NdPr & other REs at high purity
- Produce up to 15 tons of NdPr at >99.5% purity as well as La, SEG (combined Sm, Eu, & Gd) & heavy rare earth element (HREE) concentrates, which would be subject to further refining
- Provide clear pathways for the separation of other rare earths, including Sm, Dy, Tb, & other essential HREEs
- Provide a basis for scale-up to, and economic assessment of, a commercial capacity plant
- Demonstrate process is capable of treating RE concentrate from other sources, either in the US or as a result of initiatives to obtain REO from allied countries

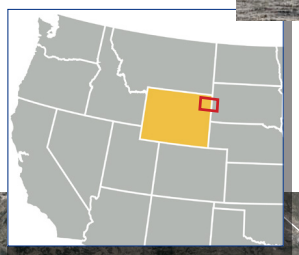
Constructing First-of-a-Kind Rare Earth Separation & Processing Demonstration Plant

- Goal to establish a domestic facility for RE separation & processing using latest developments in high tech
- Demonstrates key process steps for production of >99.5% pure Nd/Pr oxide
- Provides economic and operational data for future commercial plant
- Construction began December 2023
- Operations to begins mid-2024



State and Local Benefits

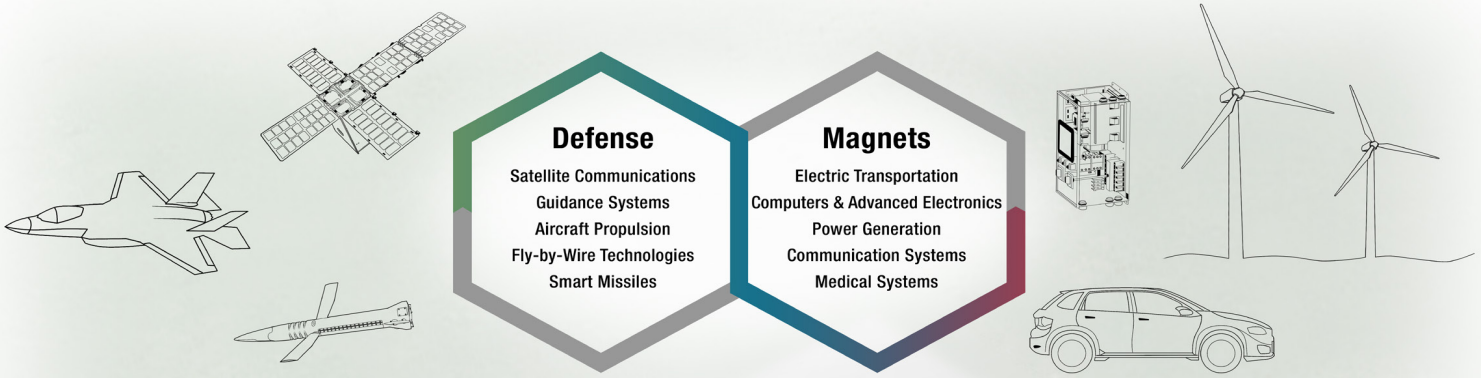
- Workforce training in key technical skills in the RE processing arena
- Partnership opportunities in rare earth sciences and technology with the University of Wyoming and other higher education institutions
- Competitive edge for Wyoming in domestic RE production
- Development of Wyoming as a RE industry hub
- Lays the groundwork for future commercial-scale RE production facility



Task	2021	2022				2023				2024				2025
REE Demonstration Plant	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Design & Engineering														
Procurement														
Construction														
Operations														

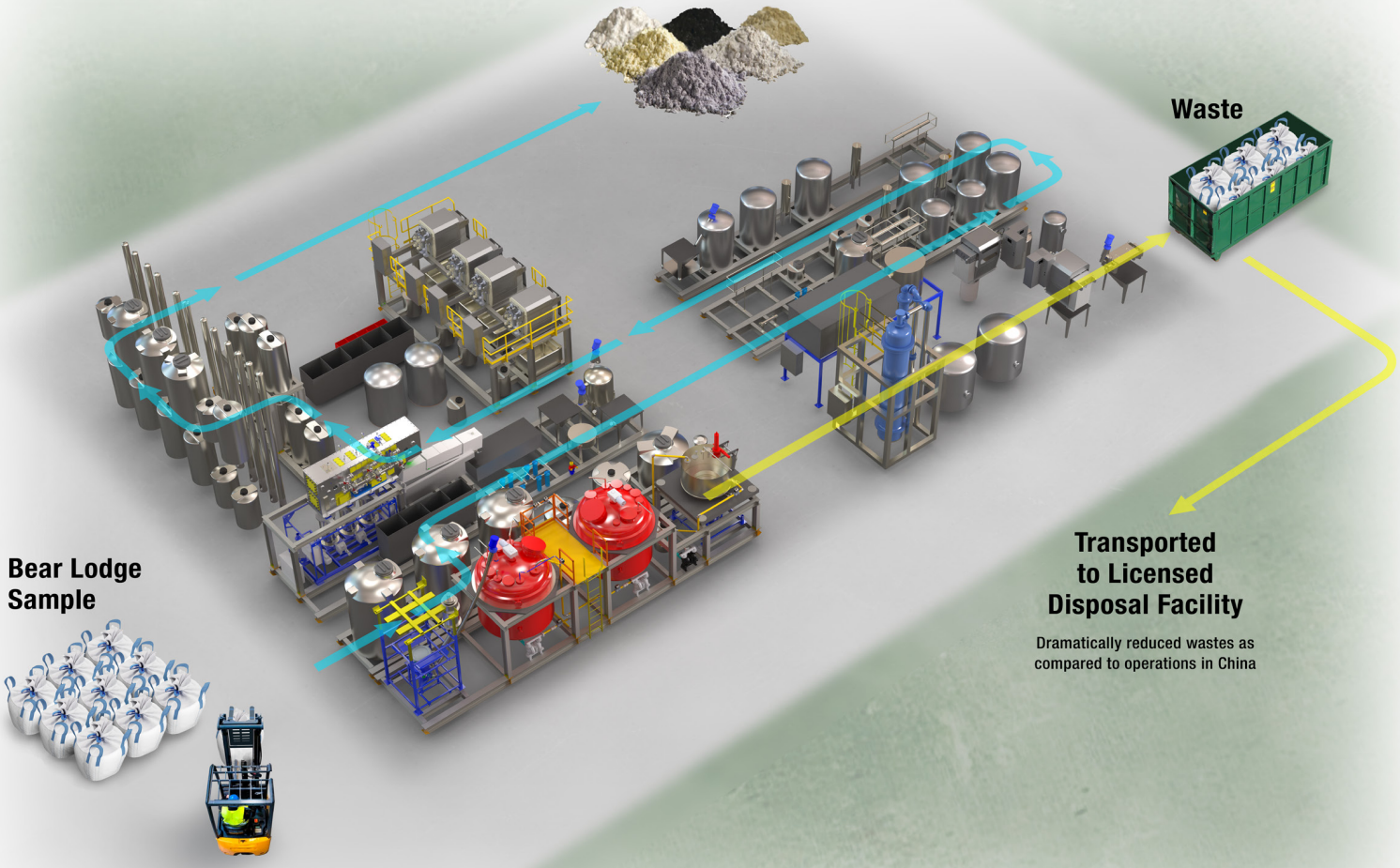
RE Separation & Processing Demonstration Plant Design

Produces High-Purity, Separated Magnet Material Rare Earth Minerals



Defense
- Satellite Communications
- Guidance Systems
- Aircraft Propulsion
- Fly-by-Wire Technologies
- Smart Missiles

Magnets
- Electric Transportation
- Computers & Advanced Electronics
- Power Generation
- Communication Systems
- Medical Systems



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